

**CLAIMS**

1. A wound dressing comprising a hydrogel composition, said hydrogel composition comprising a first portion which comprises a flexible plasticised hydrophilic polymer matrix having an internal cellular structure, and a second portion which comprises a flexible plasticised hydrophilic polymer matrix having a relatively continuous internal structure, wherein the said second portion of the hydrogel composition includes apertures providing fluid flow communication through the said second portion between an external surface of the said second portion and the first portion whereby the first portion of the hydrogel composition can take up external water or other fluid into the cellular structure through the apertures of the said second portion.
2. A wound dressing according to claim 1, wherein the first portion of said hydrogel composition comprises a porous foam having an internal cellular structure such that the volume ratio of cell void to matrix is greater than about 1:3 and the second portion comprises a relatively non-porous matrix.
3. A wound dressing according to claim 1 or claim 2, wherein the apertures of the second portion of the hydrogel composition continue into the first portion of the composition to invade it, without penetrating it entirely.
4. A wound dressing according to any one of the preceding claims, wherein one or both of the said portions of the hydrogel composition is adhesive to the skin.
5. A wound dressing according to any one of the preceding claims, wherein the outward facing surface of the said second portion of the hydrogel composition defines a wound contacting surface of the dressing.

6. A wound dressing according to any one of the preceding claims, wherein the absorption capacity of the hydrogel composition is between about 30% and about 10000%.
- 5 7. A wound dressing according to any one of the preceding claims, wherein the water uptake rate of the first portion of the hydrogel composition is at least about 2 $\mu$ l/s as measured by the test method described herein.
- 10 8. A wound dressing according to any one of the preceding claims, when in sheet form, the sheet having a substantially uniform thickness of between about 0.5 to about 10 mm.
- 15 9. A wound dressing according to any preceding claim, wherein the dressing further comprises a backing layer over the hydrogel composition.
10. A wound dressing according to claim 9, wherein the backing layer is substantially liquid-impermeable.
- 20 11. A wound dressing according to claim 9 or 10, further comprising a layer of adhesive on the surface of the backing layer facing the hydrogel composition layer.
- 25 12. A wound dressing according to claim 11, wherein the backing layer extends beyond at least one edge of the layer of hydrogel material to provide an adhesive-coated margin adjacent to said edge for adhering the dressing to a surface.
13. A wound dressing according to any preceding claim, further comprising an absorbent layer for receiving fluid transmitted through said hydrogel composition.
- 30 14. A wound dressing according to claim 13, wherein the absorbent layer comprises a further layer of hydrophilic foam.

15. A wound dressing according to any preceding claim, further comprising at least one removable cover sheet to cover the wound facing surface of the hydrogel composition before use.
- 5 16. A wound dressing according to claim 15, wherein the releasable cover sheet provided with projections which extend into the apertures in the hydrogel sheet.
17. A wound dressing according to claim 16, wherein the projections extend only part way into the hydrogel sheet.
- 10 18. A wound dressing according to any preceding claim which is sterile and packaged in a microorganism-impermeable container.
- 15 19. A wound dressing according to any preceding claim, wherein the hydrogel composition has been obtained by a process which comprises polymerising a polymerisable mixture comprising a hydrophilic monomer and optionally one or more comonomer, wherein the polymerisable mixture prior to polymerisation comprises a first portion including a relatively high concentration of introduced gas bubbles and a second portion including a relatively low concentration of gas bubbles.
- 20 20. Use of a hydrogel composition comprising a first portion which comprises a flexible plasticised hydrophilic polymer matrix having an internal cellular structure, and a second portion which comprises a flexible plasticised hydrophilic polymer matrix having relatively continuous internal structure, wherein the said second portion of the hydrogel composition includes apertures providing fluid flow communication through the said second portion between an external surface of the said second portion and the first portion whereby the first portion of the hydrogel composition can take up external water or other fluid into the cellular structure through the apertures of the said second portion, for the preparation of a dressing for the treatment of wounds and burns.
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